

Applicants: Allan Green et al.
Serial No.: 09/981,124
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In the Claims

Please amend the claims by replacing all prior listings of claims with the listing of claims below pursuant to 37 C.F.R. §1.121:

1-40. (Canceled).

41. (Currently Amended) A process for producing ~~the~~ a transgenic plant ~~of claim 26~~ comprising

a) transforming a cell or tissue of a plant with a nucleic acid encoding a polypeptide having the following three histidine-rich regions (i), (ii) and (iii):

(i) His-(Xaa)₃-His (SEQ ID NO: 21) or

His-(Xaa)₄-His (SEQ ID NO: 22);

(ii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or

His-(Xaa)₃-His-His (SEQ ID NO: 24); and

(iii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or

His-(Xaa)₃-His-His (SEQ ID NO: 24),

wherein His designates histidine, Xaa designates any naturally-occurring amino acid, (Xaa)₃ refers to a sequence of three amino acids, (Xaa)₄ refers to a sequence of four amino acids, and (Xaa)₂ refers to a sequence of two amino acids,

wherein the polypeptide comprises a sequence of amino acids at least 60% identical to the sequence of amino acids set forth in SEQ ID NO: 2, and

wherein the nucleic acid is under the control of a promoter conferring transcription of the nucleic acid in the plant

~~a plant fatty acid Δ -12 epoxygenase under the control of a seed-specific promoter; and~~

b) regenerating the transformed cell or tissue to produce the transgenic plant.

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42. (Previously presented) The process of claim 41, wherein the plant is *Arabidopsis thaliana*, flax, oilseed rape, sunflower, safflower, soybean, sesame, cottonseed, peanut, olive or oil palm.
43. (Currently Amended) The ~~transgenic plant~~ process of claim 41, wherein the plant is flax, sunflower, corn, or safflower.
- 44-49. (Cancelled)
50. (New) The process of claim 41, further comprising a step of selecting a transgenic plant expressing a functional epoxygenase.
51. (New) The process of claim 50, wherein the plant is *Arabidopsis thaliana*, flax, oilseed rape, sunflower, safflower, soybean, sesame, cottonseed, peanut, olive or oil palm.
52. (New) The process of claim 50, wherein the promoter is a seed-specific promoter.
53. (New) The process of claim 50, further comprising producing seed of the plant.
54. (New) The process of claim 53, further comprising selecting a seed having 12,13-epoxy-9-octadecenoic acid at a level of greater than 0.7%(w/w) of the total seed fatty acid content.
55. (New) The process of claim 50, further comprising obtaining the nucleic acid from a plant and producing a gene

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construct which comprises the nucleic acid and the promoter.

56. (New) The process of claim 55, wherein the plant is of *Chrysanthemum* spp., *Crepis* spp., *Euphorbia* spp., or *Vernonia* spp.

57. (New) A process for producing a transformed plant cell comprising introducing into the plant cell a nucleic acid encoding a polypeptide having the following three histidine-rich regions (i), (ii) and (iii):

- (i) His-(Xaa)₃-His (SEQ ID NO: 21) or His-(Xaa)₄-His (SEQ ID NO: 22);
- (ii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or His-(Xaa)₃-His-His (SEQ ID NO: 24); and
- (iii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or His-(Xaa)₃-His-His (SEQ ID NO: 24),

wherein His designates histidine, Xaa designates any naturally-occurring amino acid, (Xaa)₃ refers to a sequence of three amino acids, (Xaa)₄ refers to a sequence of four amino acids, and (Xaa)₂ refers to a sequence of two amino acids,

wherein the polypeptide comprises a sequence of amino acids at least 60% identical to the amino acid sequence set forth in SEQ ID NO: 2, and

wherein the nucleic acid is under the control of a promoter conferring transcription of the nucleic acid in a plant cell and is stably integrated into the genome of the cell, thereby producing the transformed plant cell.

58. (New) The process of claim 57, wherein the plant is *Arabidopsis thaliana*, flax, oilseed rape, sunflower,

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safflower, soybean, sesame, cottonseed, peanut, olive or oil palm.

59. (New) The process of claim 57, wherein the process further comprises obtaining the nucleic acid from a plant and producing a gene construct which comprises the nucleic acid and the promoter.
60. (New) The process of claim 59, wherein the plant is of *Chrysanthemum* spp., *Crepis* spp., *Euphorbia* spp., or *Vernonia* spp.
61. (New) The process of claim 57, wherein the promoter is a seed-specific promoter.